Docket No.: 9988.071.00
(PATENT)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of:
DO, Gi Hyeong

Customer No.: 30827

Application No.: 10/717,610

Confirmation No.: 8195

Filed: November 21, 2003

Art Unit: 3749

For: LAUNDRY DRYER CONTROL METHOD

Examiner: Stephen Michael Gravini

Mail Stop Appeal Brief - Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

APPELLANT'S BRIEF

Sir:

In response to a final rejection of all pending claims that was mailed on May 10, 2006, an Advisory Action that was mailed on August 24, 2006, a Supplemental Advisory Action that was mailed on October 18, 2006, a Notice of Panel Decision from Pre-Appeal Brief Review mailed on November 24, 2006 and in support of a "Notice of Appeal" filed on October 11, 2006, the Appellant hereby submits this Appeal Brief.

The fees required under 37 C.F.R. § 1.17(f) and any required petition for extension of time for filing this brief and fees therefore are dealt with in the accompanying TRANSMITTAL OF APPEAL BRIEF.

This brief contains items under the following headings as required by 37 C.F.R. § 41.37(c):

I. Real Party In Interest

II. Related Appeals and Interferences

III. Status of Claims

IV. Status of Amendments

I. REAL PARTY INTEREST

The real party in interest for this appeal is: LG Electronics, Inc.

II. RELATED APPEALS AND INTERFERENCES

There are no other appeals or interferences that will directly affect or be directly affected by or have a bearing on the Board's decision in this appeal.

III. STATUS OF CLAIMS

Total Number of Claims in the Application

There are 13 claims pending in this application.

Current Status of Claims

Claims canceled: Claims 4 and 5.

Claims withdrawn from consideration but not canceled: Claims 9-14.

Claims pending: Claims 1-3, 6-8 and 15.

Claims allowed: None.

Claims rejected: Claims 1-3, 6-8 and 15.

Claims on Appeal: The claims on appeal are claims 1-3, 6-8 and 15.

IV. STATUS OF AMENDMENTS

Appellant filed a response to a June 21, 2005 Office Action on October 21, 2005. The response, among other things, presented Appellant's argument to overcome a nonstatutory double patenting rejection of claims 1-8 and 15 of the then pending application. The June 21

Office Action considered only one of the five elements of independent claim 1 in its nonstatutory double patenting rejection. The Examiner issued a non-final Office Action on December 13, 2005, which repeated, *verbatim*, the nonstatutory double patenting rejection of the Office Action of June 21, 2005. Appellant filed its response on March 13, 2006. Claim 1 was amended by incorporation of the elements of two of its dependent claims. Consequently, as of Appellant's March 13, 2006 response, claim 1 included seven elements. The Examiner improperly issued an advisory action on March 24th stating that the amendments presented after the "final" Office Action of December 13, 2005 would not be entered. Following a telephonic interview of April 4, 2006, the Examiner recognized that the December 15th Office Action was not final and agreed to withdraw the advisory action and issue a new action on the merits. *See* Interview Summary attached to Office Action of April 11, 2006. Remarkably, ignoring the amendments to the claims, the final Office Action of April 11, 2006 again repeated, *verbatim*, the nonstatutory double patenting rejection of the Office Action of June 21, 2005. After bringing this fact to the Examiner's attention, the Examiner issued a "corrected" final action on May 10, 2006. *See* Interview Summary attached to Office Communication of May 10, 2006. To Appellant's astonishment, the "corrected" final rejection of May 10th, among other things, once again repeated, *verbatim*, the nonstatutory double patenting rejection of the Office Action of June 21, 2005. Appellant concludes, that among other things, the Examiner never considered Appellants amendments. Following a personal interview conducted on July 11, 2006, Appellant filed a response on August 9, 2006.

The response of August 9, 2006 sought to place rejected dependent claims 2 and 6 in better form for consideration on appeal. The amendments to those claims merely corrected their dependencies, which were inadvertently left as dependencies of a previously cancelled claim 5. Appellant's arguments also sought to make the Examiner recognize the deficiencies of previous rejections, including, among others, the deficiency of the repeated nonstatutory double patenting rejection. *See* Amendment After Final, filed August 9, 2006. An Advisory Action was mailed on October 18, 2006, which nevertheless indicated that the amendments of August 9th would not be entered because "the amended claims change the scope and breadth of the invention such that the Office necessitates a new search and/or further consideration." The Examiners explanation is a canned response. If the August 9th amendment was properly considered, the Examiner

should have understood that the nature of the amendment (a change in the dependencies of two previously presented dependent claims) could not change the scope and breadth of the invention so as to necessitate a new search and/or further consideration of the application. No amendments were filed after Appellant's August 9, 2006 Amendment After Final. Appellant filed a Pre-Appeal Brief on October 11, 2006. The panel reviewing the Pre-Appeal Brief, which included the Examiner, concluded that this matter should proceed to the Board of Patent Appeals and Interferences.

V. SUMMARY OF CLAIMED SUBJECT MATTER

The following summary of the claimed subject matter includes a description of independent claim 1, the only independent claim involved in this appeal. The present invention is directed to a laundry dryer control method. The laundry dryer control method includes the steps of initiating a drying procedure S100 and performing the drying procedure S200. FIG. 6; ¶ 0025. Temperature is measured using temperature sensor 240 coupled to a microcomputer 250. FIG. 5. A temperature variation rate (*i.e.*, a change in temperature per unit time) is calculated. FIG. 6; ¶ 0025. While the drying operation is ongoing, a plurality of temperature variation rates are calculated. *See* FIG. 6 ("no" branch from S300 to S200). The rate of change of the temperature variation rate (*i.e.*, a change in the change in temperature per unit time) is determined and monitored. FIG. 6, S300. Once it is determined that there is a substantial increase in the rate of change of the temperature variation rate, the remaining drying time is calculated. FIG. 6 ("yes" branch from S300 to S400); S400. Once calculated, the drying operation is performed for the calculated remaining dryer time. FIG. 6, S500; ¶ 0027.

VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

(A) Claims 1-8 and 15 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-11 of U.S. Patent No. 6,775,923 to Do (hereinafter "*Do '923*").

(B) Claims 1-3 and 6-8 are rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 4,412,389 to Krüger (hereinafter "*Krüger*") in view of U.S. Patent No. 5,628,684 to Wentzlaff *et al.* (hereinafter "*Wentzlaff*").

(C) Claim 15 is rejected under 35 U.S.C. § 103(a) as being unpatentable over *Krüger* in view of *Wentzlaff* and further in view of U.S. Patent No. 3,792,956 to Hyldon (hereinafter "*Hyldon*").

VII. ARGUMENTS

A. Claims 1-3, 6-8, and 15 Are Patentable Over Claims 1-11 of *Do '923* Under the Judicially Created Doctrine of Obviousness-Type Double Patenting.

The instant application (the "*Do Application*") and *Do '923* are commonly assigned and have the same inventive entity. Additionally, the *Do Application* and the application that matured into *Do '923* were filed on the same day, November 21, 2003.

It is understood that in order to establish an obviousness-type double patenting rejection, the allegedly conflicting claims are not required to be identical, but at least one claim in the examined application must be considered to be not patentably distinct from the claims of the reference. In other words, the examined application's claim must either be anticipated by, or would have been obvious over, the claims of the reference. As explained below, the Examiner's erroneous conclusion as to double patenting is based on an analysis of only one of seven elements of independent claim 1 of the *Do Application*. The Examiner failed to consider the remaining six elements. If the Examiner attempted to perform such an analysis, then he would find that the claims of *Do '923*, fail to anticipate, and do not render obvious, at least, the elements of "calculating a plurality of temperature variation rates; and determining whether there is a substantial increase in the temperature variation rate as a function of the plurality of temperature variation rates," as recited in independent claim 1 of the *Do Application*.

In order to anticipate a claim, each and every element of the claim must be set forth, either expressly or inherently, in the claims of a single reference (here *Do '923*). For the convenience of the Board, claims 1 of the *Do Application* and *Do '923* are reproduced below.

Do Application, U.S.S.N. 10/717,610	*Do '923*, U.S. Patent No. 6, 775,923
1. A laundry dryer control method comprising the steps of: initiating a drying procedure; measuring temperature; calculating a temperature variation rate; calculating a drying time based on the temperature variation rate; performing the drying procedure for the calculated drying time; calculating a plurality of temperature variation rates; and determining whether there is a substantial increase in the temperature variation rate as a function of the plurality of temperature variation rates.	1. A laundry drier control method comprising steps of: initiating a drying procedure by actuating a plurality of drivers, including a heater driver to increase an internal temperature of a laundry drier; determining a medium temperature time by measuring a time lapse from said drying procedure initiating step to a point where the internal temperature reaches a medium temperature between a drying initiation temperature and a maximum drying temperature; setting a drying time based on the determined medium temperature time; and performing the drying procedure for the set drying time.

The Examiner has admitted, "the conflicting claims are not identical." Office Actions of: June 21, 2005 at p. 5; December 13, 2005 at p. 5; and May 10, 2006 at p. 5. Accordingly, the claims of the *Do Application* are not anticipated by the claims of *Do '923*.

Moreover, the Examiner never pointed out with particularity, how each of the claim elements of claim 1 of the *Do Application*, are rendered obvious in light of one or more claim elements of claim 1 of *Do '923*. The Examiner has most pointedly ignored at least the final two elements of claim 1 of the *Do Application*, which the Appellant added by the amendment of March 13, 2006. Office Actions of: June 21, 2005 at p. 5; December 13, 2005 at p. 5; and May 10, 2006 at p. 5 (Examiner only addresses third element of independent claim 1, in repeated *verbatim* rejections).

To support the double patenting rejection, the Examiner asserts that the third element of the *Do Application*, that is, the claimed feature of "calculating a temperature variation rate," is considered a broader recitation of "determining a medium temperature time by measuring a time lapse from said drying procedure initiating step to a point where the internal temperature reaches

a medium temperature between a drying initiation temperature and a maximum drying temperature; setting a drying time based on the determined medium temperature time and performing the drying procedure for the set drying time" as claimed in *Do '923*. *Id.* When given its broadest possible interpretation, the Examiner's conclusion appears baseless.

Even if, for arguments sake, the Examiner's conclusion had merit, there is still no indication in *Do '923's* claims of a teaching or suggestion of, at least, "calculating a plurality of temperature variation rates; and determining whether there is a substantial increase in the temperature variation rate as a function of the plurality of temperature variation rates," as recited in claim 1 of the *Do Application*. Indeed, the Examiner has failed to present such arguments, despite repeated opportunities to do so. *Id.* Accordingly, *Do '923* cannot render the *Do Application* obvious because it fails to teach or suggest, at least, "calculating a plurality of temperature variation rates; and determining whether there is a substantial increase in the temperature variation rate as a function of the plurality of temperature variation rates," as recited in claim 1 of the *Do Application*. The Appellant further submits that it would not have been obvious to one of ordinary skill in the art to modify the claims of *Do '923* to include all the claimed features required by claim 1 of the *Do Application*. Therefore, the claims of the *Do Application* are patentably distinct from the claims of *Do '923* and the obviousness-type double patenting rejection is improper. Accordingly, the Appellant respectfully submits that claims 1-3, 6-8 and 15 are allowable over *Do '923*.

B. Independent Claim 1, and Claims 2, 3 and 6-8, Which Depend Therefrom, Are NOT Obvious Over *Krüger* in View of *Wentzlaff* Under 35 U.S.C. § 103(a).

It is understood that in order to establish a *prima facie* case of obviousness under 35 U.S.C. § 103(a), three basic criteria must be met. One of these criteria is that the prior art references must teach or suggest *all* of the claimed limitations. Neither *Krüger* nor *Wentzlaff*, singularly or in combination, teach or fairly suggest every element required by independent claim 1. More specifically, claim 1 recites a laundry dryer control method that includes "calculating a plurality of temperature variation rates; and determining whether there is a substantial increase in the temperature variation rate as a function of the plurality of temperature variation rates."

1. *Wentzlaff* Does Not Teach or Suggest Calculating a Plurality of Temperature Variation Rates.

In the final Office Action attached to the Interview Summary dated May 10, 2006, the Examiner admits that *Krüger* does not teach "calculating a plurality of temperature variation rates; and determining whether there is a substantial increase in the temperature variation rate as a function of the plurality of temperature variation rates." The Appellant agrees. To cure this deficiency, the Examiner relies on column 8, lines 1-59 of *Wentzlaff* to allegedly teach or suggest these features. Contrary to the Examiner's allegation, the dryer control method taught by *Wentzlaff* fails to calculate any rate. Therefore, it cannot possibly teach or suggest calculating a temperature variation rate, calculating more than one temperature variation rate and determining whether there is a substantial increase in temperature variation rate, as required by the claims.

What *Wentzlaff* actually teaches is periodically measuring temperatures at different locations in the dryer. *See Wentzlaff* at column 8, lines 29-46. Taking a plurality of temperature measurements during one or even a plurality of time periods does not constitute calculating a rate, or more specifically, a temperature variation rate.

The term *rate* has an ordinary and customary meaning: a ratio between two variables. With regard to the present invention, it is quite clear that a temperature variation rate reflects a change in temperature relative to a change in time, where the change in temperature is considered a first variable in the ratio and the change in time is a second variable. *See* page 6, paragraph [0025] of the specification. Thus, a temperature variation rate may reflect a change in temperature per unit time. In order to determine whether there is a substantial increase in the temperature variation rate as a function of a plurality of temperature variation rates, it is necessary to first calculate a plurality of temperature variation rates. Then a determination must be made to ascertain whether there has been a substantial increase in the rate of the plurality of temperature variation rates. In other words, a determination must be made to ascertain whether there has been a substantial increase in *a change in* the change in temperature per unit time. For example, if three temperature variation rates are calculated, then it must be determined whether

the third temperature variation rate is substantially greater than the first or second temperature variation rates.

Wentzlaff contains no teaching or suggestion to indicate that the temperature measurements taken at various locations in the dryer are in any way used to calculate or determine a rate of change in the temperature (*i.e.*, a temperature variation rate). In fact, *Wentzlaff* merely states that the aforementioned temperature measurements are input into a "fuzzy processor." *See Wentzlaff* at column 8, lines 62-67. *Wentzlaff* provides no disclosure as to what the fuzzy processor does with the temperature measurements.

Accordingly, the Appellant respectfully submits that independent claim 1 and claims 2, 3 and 6-8, which depend therefrom are patentable over *Krüger* in view of *Wentzlaff.*

2. *Wentzlaff* Does Not Inherently Teach Calculating a Plurality of Temperature Variation Rates.

During a personal interview conducted on July 11, 2006, the Examiner modified his final rejection stating that *Wentzlaff* does not *explicitly* teach "calculating a plurality of temperature variation rates;" however, *Wentzlaff inherently* teaches calculating a temperature variation rate and calculating an increase in temperature variation rate because the temperatures measured at the different locations within the dryer are taken at predetermined time intervals. The Examiner's position is both technically and legally flawed.

"To establish inherency, the extrinsic evidence 'must make clear that the missing descriptive matter is *necessarily* present in the thing described in the reference, and that it would be so recognized by persons of ordinary skill. Probabilities or possibilities do not establish inherency. The mere fact that a certain thing may result from a given set of circumstances is not sufficient.'" *In re Robertson*, 169 F.3d 743, 745, 49 USPQ2d 1949, 1950-51 (Fed. Cir. 1999).

In the present case, the descriptive matter missing from *Wentzlaff* is (1) "calculating a plurality of temperature variation rates" and (2) "determining...a substantial increase in the temperature variation rate as a function of the plurality of temperature variation rates." At most, *Wentzlaff* teaches sensing a temperature at three locations within a dryer at a predetermined time

interval. The fact that a temperature value is sensed at various locations and at various times does not *necessarily* suggest that the temperature values are then used to calculate a temperature variation rate. It only suggests that temperatures have been determined--nothing more, nothing less. Moreover, sensing temperatures at a given time interval most certainly does not *necessarily* suggest using the sensed temperature values to calculate a plurality of rates. Nor does it *necessarily* suggest determining whether there has been a substantial increase in the temperature variation rate based on the plurality of temperature variation rates.

In addition, the mere fact that *Wentzlaff* discloses the use of a computer, and that computers are capable of calculating a rate, does not mean that the computer in *Wentzlaff* inherently performs this function. As previously stated, all that *Wentzlaff* discloses is that the temperatures, along with numerous other variables, are used by a "fuzzy logic" algorithm to determine a total drying time.

Again, *Wentzlaff* fails to cure the deficiencies of *Krüger*. Thus, the Appellant respectfully submits that claims 1-3 and 6-8 are patentable over *Krüger* in view of *Wentzlaff*.

3. Examiner Must Provide Evidence Supporting Inherency Claim.

It is understood that in order to maintain an inherency claim, the Examiner must provide "a basis in fact and/or technical reasoning to reasonably support the determination that the allegedly inherent characteristic necessarily flows from the teachings of the applied prior art." The Appellant has requested the Examiner provide documentary evidence to support the claim that *Wentzlaff* inherently teaches "calculating a plurality of temperature variation rates; and determining whether there is a substantial increase in the temperature variation rate as a function of the plurality of temperature variation rates." The Examiner has improperly maintained the rejection without providing such evidence. Absent of any evidence to the contrary, the Appellant's assertion that *Wentzlaff* does not inherently teach "calculating a plurality of temperature variation rates; and determining whether there is a substantial increase in the temperature variation rate as a function of the plurality of temperature variation rates," is substantiated.

C. Dependent Claim 15 is NOT Obvious Over *Krüger* and *Wentzlaff* in View of *Hyldon* Under 35 U.S.C. §103(a).

In the final Office Action, the Examiner alleges that *Krüger* in view of *Wentzlaff* teaches all the claimed features except "determining whether the change in temperature variation rate exceeds 1° Celsius per minute," as required by claim 15. The Examiner alleges that *Hyldon* discloses this feature and thus it would have been obvious to one of ordinary skill to modify the teaching of *Krüger* in view of *Wentzlaff* in further view of *Hyldon* in order to obviate the claimed invention.

As previously discussed with reference to claim 1, the independent claim from which claim 15 depends, *Krüger* and *Wentzlaff* fail to teach or suggest, at least, "calculating a plurality of temperature variation rates; and determining whether there is a substantial increase in the temperature variation rate as a function of the plurality of temperature variation rates." Likewise, *Hyldon* fails to teach or suggest at least this feature. Even if one of ordinary skill would have been motivated to modify the teaching of *Krüger* and *Wentzlaff* with the drying process of instant corn grits taught by *Hyldon*, the combined teaching still fails to address each and every feature required by claim 1. Therefore, the Appellant respectfully submits that claim 15 is patentable over *Krüger* and *Wentzlaff* in view of *Hyldon.*

For all the above reasons, the Appellant respectfully requests that this Honorable Board find that the obviousness-type double patenting rejection is improper and that the Examiner has failed to establish a *prima facie* case of obviousness under 35 U.S.C. § 103(a), and reverse the rejections of claims 1-3, 6-8 and 15.

Dated: February 26, 2007

Respectfully submitted,

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Attachments

CLAIMS APPENDIX

Claims Involved in the Appeal of Application Serial No. 10/717,610

1. (Previously Presented) A laundry dryer control method comprising the steps of:

initiating a drying procedure;

measuring temperature;

calculating a temperature variation rate;

calculating a drying time based on the temperature variation rate;

performing the drying procedure for the calculated drying time;

calculating a plurality of temperature variation rates; and

determining whether there is a substantial increase in the temperature variation rate as a function of the plurality of temperature variation rates.

2. (Previously Presented) The method as claimed in claim 5, wherein said calculating step is repeated if a substantial increase in the temperature variation rates is detected.

3. (Previously Presented) The method as claimed in claim 1, further comprising:

calculating changes in temperature variation rate; and

determining whether a change in temperature variation rate is substantial.

6. (Previously Presented) The method as claimed in claim 5, wherein the substantial increase is determined by comparing changes in the plurality of temperature variation rates.

7. (Previously Presented) The method as claimed in claim 1, wherein said drying time calculating step comprises:

calculating a remaining drying time, wherein drying for the remaining drying time completes the drying procedure.

8. (Previously Presented) The method as claimed in claim 7, wherein the remaining drying time is based on a known drying pattern, the known drying pattern varying according to an amount and type of laundry.

15. (Previously Presented) The method as claimed in claim 6, wherein determining whether a change in the temperature variation rates is substantial comprises:

determining whether the change in a temperature variation rate exceeds 1°C per minute.

EVIDENCE APPENDIX

None.

RELATED PROCEEDINGS APPENDIX

None.